REMARKS

Claims 1-38 are pending in the present Application. In the Office Action, dated September 16, 2004, claims 1-38 were rejected under 35 U.S.C. § 102(a) as allegedly anticipated by Girardot, Marc and Sundaresan, Neel, "Millau: an Encoding format for efficient representation and exchange of XML over the Web," Computer Networks 33 (2000) 747-765 (Girardot et al.). All of the independent claims 1, 12, 16, 20, 23, 27, and 38 have been amended to expressly recite features inherent in the binary format of the present invention. Claim 29 has been canceled and its limitations, among others, have been incorporated into the independent claims.

Initially, Applicants appreciate the time and effort the Examiner has spent drafting the September 16, 2004 Office Action. As explained below, however, Applicants believe that the claimed invention patentably defines over the cited reference.

Summary of the Invention

The claimed invention provides for a method and system for binary formatting of tag-based data descriptions. Thus, the invention is suited for tokenizing text-based data formats such as XML. In one embodiment of the invention, a method is taught for generating a data stream according to a binary format of a tag-based description language, such that tag names and attribute names are tokenized into numeric tokens of variable size. The tokenizing of the tag names included inserting a name definition construct into the data stream the first time a tag name is encountered, which is done for the purpose of recreating the tag names by a device that receives the data stream. At the same time, the tokenizing of the attributes enables values natively stored as binary data types to be inserted into the data stream. Data stream access is important both at parsing and generation time, thus the binary format of the present invention is designed to allow incremental output and parsing of the XML document without forcing the creation of a global token table or string table at the beginning of the stream.

Tokenizing of the tag and attribute names has numerous advantages, such as: (1) decreasing the time elapsed for data stream parsing by a device that receives the data stream, the time being decreased relative to the parsing of a corresponding text-based format of the tag-based description language; (2) decreasing overhead incident to formatting data for representation according to the tag-based description language; and (3) decreasing the size of the resulting data file formatted according to the tag-based description language.

Millau: an encoding format for efficient representation and exchange of XML over the Web

Millau is a system for efficient encoding and streaming of XML structures. *Millau* describes algorithms for compression of XML structures and data. The compression algorithms, in addition to separating structure and text for compression, take advantage of associated schema in compressing the structure. *Millau* also defines a programming model corresponding to XML DOM and SAX for XML APIs for streams of XML documents (Abstract).

Specifically, regarding the *Millau* compression model, it is an extension of the WAP binary XML format. The WBXML (Wireless Application Protocol Binary XML) format defines a compact binary representation of XML. This format reduces the transmission size of XML data with no loss of functionality or semantic information. It accomplishes this task by encoding the tag names and attribute names and values with tokens (p. 749, col. 1, ¶ 1 - ¶ 2). *Millau* extends this format to adapt it to business to business applications while improving on the compression algorithm itself (p. 748, col. 1, ¶ 1).

Claim Rejections Under 35 U.S.C. § 102(a)

As mentioned, independent claims 1, 12, 16, 20, 23, 27, and 38 were rejected under 35 U.S.C. § 102(a) as allegedly anticipated by Girardot et al. These independent claims have been amended based on aspects of the invention taught in the written description of the Application.

For example, currently amended independent claim 1, reads:

> 1. A method for generating a data stream according to a binary format of a tag-based description language, comprising:
>
> tokenizing tag names into numeric tokens *for use in the data stream, wherein the binary format allows for incremental output and parsing of the data stream without forcing the creation of tables at the beginning of the stream.*

(amendments underlined, emphasis italicized). The binary format allows for incremental output and parsing of the data stream without forcing the creation of tables, such as the global token table and string table, at the beginning of the stream. Support for this limitation can be found in the written description:

> Streaming access is also important both at parsing and generation time, and so *the binary format*, generated or parsed by modules 210a, 210b, 310a or 310b, *is designed to allow incremental output and parsing of the XML document without forcing the creation of a global token table or string table at the beginning of the stream.*

(Application, p. 15, ll. 20-23) (emphasis added). This aspect of the invention is important since it distinguishes the claimed invention from WAP (Wireless Application Protocol), where, for example, "a string table is included at the beginning at the stream, which doesn't allow incremental addition to the table" (Application, p. 26, ll. 5-6). This aspect also distinguishes the claimed invention over Girardot et al., despite the fact that Girardot et al. characterizes itself as "an extension of the WAP binary XML format" (p. 749, ¶ 1). Girardot et al. is silent as to such incremental output and parsing of the data stream.

Examiner cites pages 751-752, 4.1 The Millau SAX parser, as the closest alleged anticipation of this newly added limitation to claim 1 (Office Action, p. 7, ll. 10-12). However, all that is disclosed in section 4.1 is a conventional SAX parser which creates a LIFO (last in, first out) stack, and then reads tokens from the input stream until the stack is empty. No mention is made of a "*binary format* [that] allows for *incremental output and parsing of the data stream without forcing the creation of tables at the beginning of the stream*" (claim 1).

Currently amended claims 12, 16, 20, 23, 27, and 38 contain similar limitations to that of claim 1: "*wherein the binary format allows for incremental output and parsing of the document without forcing the creation of tables at the beginning of the document*" (claim 12); "*wherein the*

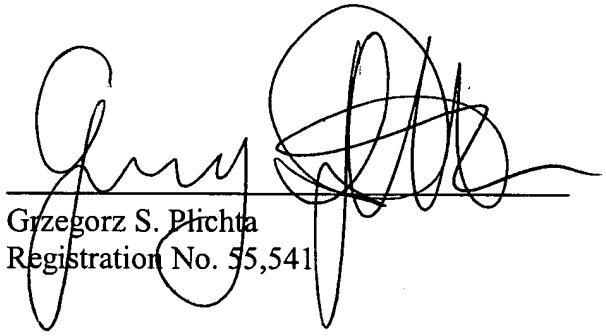
binary format allows for incremental output and parsing of the data without forcing the creation of tables at the beginning of the data" (claim 16); "*wherein the binary format allows for incremental output and parsing of the document without forcing the creation of tables at the beginning of the document*" (claim 20); "*wherein the binary format allows for incremental output and parsing of the document without forcing the creation of tables at the beginning of the document*" (claim 23); "*wherein the binary format allows for incremental transmitting and parsing of the data without forcing the creation of tables at the beginning of the data*" (claim 27); and "*wherein the XML binary format allows for incremental output and parsing of the data stream without forcing the creation of tables at the beginning of the stream*" (claim 38).

As mentioned, claims 1, 12, 16, 20, 23, 27, and 38 are the independent claims. Claims 2-11, 13-15, 17-19, 21-22, 24-26 and 28-37 depend either directly or indirectly from claims 1, 12, 16, 20, 23, 27, and 38, respectively, and are believed allowable for the same reasons. Accordingly, Applicants submit that claims 1-38 patentably define over Girardot et al. Withdrawal of the rejection and allowability of the pending claims is thus earnestly solicited.

CONCLUSION

Applicants believe that the present Amendment is responsive to each of the points raised by the Examiner in the Office Action, and submit that Claims 1-38 of the Application are in condition for allowance. Favorable consideration and passage to issue of the application at the Examiner's earliest convenience is earnestly solicited.

Date: December 15, 2004



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